Fisheries and Oceans Canada | Pêches et Océans Canada

Integrated Fisheries Management Plan Summary

Shrimp Trawl

Smooth Pink Shrimp (*Pandalus jordani*) and Sidestripe Shrimp (*Pandalopsis dispar*)

Pacific Region

2014/15

The purpose of this Integrated Fisheries Management Plan (IFMP) summary is to provide a brief overview of the information found in the full IFMP. This document also serves to communicate the basic information on the fishery and its management to DFO staff, legislated co-management boards and other stakeholders. The full IFMP provides a common understanding of the basic "rules" for the sustainable management of the fisheries resource. The full IFMP is available on request.

This IFMP summary is not a legally binding instrument which can form the basis of a legal challenge. The IFMP can be modified at any time and does not fetter the Minister's discretionary powers set out in the *Fisheries Act*. The Minister can, for reasons of conservation or for any other valid reasons, modify any provision of the IFMP in accordance with the powers granted pursuant to the *Fisheries Act*.

Where DFO is responsible for implementing obligations under land claims agreements, the IFMP will be implemented in a manner consistent with these obligations. In the event that an IFMP is inconsistent with obligations under land claims agreements, the provisions of the land claims agreements will prevail to the extent of the inconsistency.

S. Farlinger, Regional Director General

General Overview/Introduction **IFMP Section 1**

The 2014/15 Pacific Region Shrimp Trawl Integrated Fisheries Management Plan (IFMP) encompasses the period of April 1, 2014 to March 31, 2015. Shrimp are harvested by two different methods in the Pacific Region, trawl nets and traps. This IFMP covers the harvest of Pacific shrimp species by trawl gear only. For more information on the trap fishery, including commercial, recreational and First Nations fisheries for prawns and shrimp, please refer to the Pacific Region Prawn and Shrimp by Trap IFMP.

The species of shrimp targeted by trawl gear are from the family Pandalidae. The most frequent targets are smaller shrimp species such as the northern or spiny pink shrimp (*Pandalus borealis*) and the smooth pink shrimp (*Pandalus jordani*), collectively called pink shrimp. The next most common species is the sidestripe shrimp (*Pandalopsis dispar*). This species grows to a larger size and has a higher market value than pink shrimp. Two other species of Pandalid shrimp, the coonstripe shrimp (*Pandalus danae*) and the humpback shrimp (*Pandalus hypsinotus*) are also caught in localized areas. These two species may be incidentally retained by shrimp trawl harvesters but seldom make up the majority of their catch. Minor incidental bycatch retention of the spot prawn (*Pandalus platyceros*) is permitted.

Pink and sidestripe shrimp are harvested commercially by trawl gear. Smaller beam trawl vessels (less than 15 m overall length) tend to fish in more sheltered areas and larger otter trawl vessels (15 to 35 m) use larger nets towed at higher speeds and sometimes fish in offshore areas.

Species specific catch ceilings are defined for 34 shrimp management areas. Catch ceilings are defined from biomass surveys in the main fishing areas and harvest rates are defined following the Precautionary Approach: Harvest rates vary from 35% of species specific biomass (Healthy Zone), 35% to 0% in the Cautious Zone and no fishing is allowed when shrimp biomass is defined to be in the Critical Zone. The fishery is open year round in a few areas where shrimp biomasses are large and fishing effort is low so that catch ceilings are not reached. The majority of shrimp management areas open June 1 and close if catch ceilings are reached.

Stock Assessment, Science & Traditional Knowledge **IFMP Section 2**

There are over 90 species of shrimp found in waters of British Columbia. Seven of these species of shrimp, belonging to the Family Pandalidae, are harvested by the shrimp trawl fishery off the Pacific Coast of Canada. The species are the northern pink, (*Pandalus borealis eous*), smooth pink shrimp (*P. jordani*), flexed pink shrimp (*P. goniurus*), coonstripe shrimp (*P. danae*), humpback shrimp (*P. hypsinotus*), prawn or spot shrimp (P. platyceros), and sidestripe shrimp (*Pandalopsis dispar*). The fishery varies in complexity from single species harvest to multi-species harvest, although pink and sidestripe shrimp are the main species targeted by the commercial trawl fleet.

Pandalid shrimp have a wide distribution in the northeast Pacific and are found from California to the Bering Sea and occupy a variety of habitats from rocky to mud bottoms. They are found in depths from intertidal to greater than 1300 meters and inhabit both inshore and offshore areas (Fig 1).

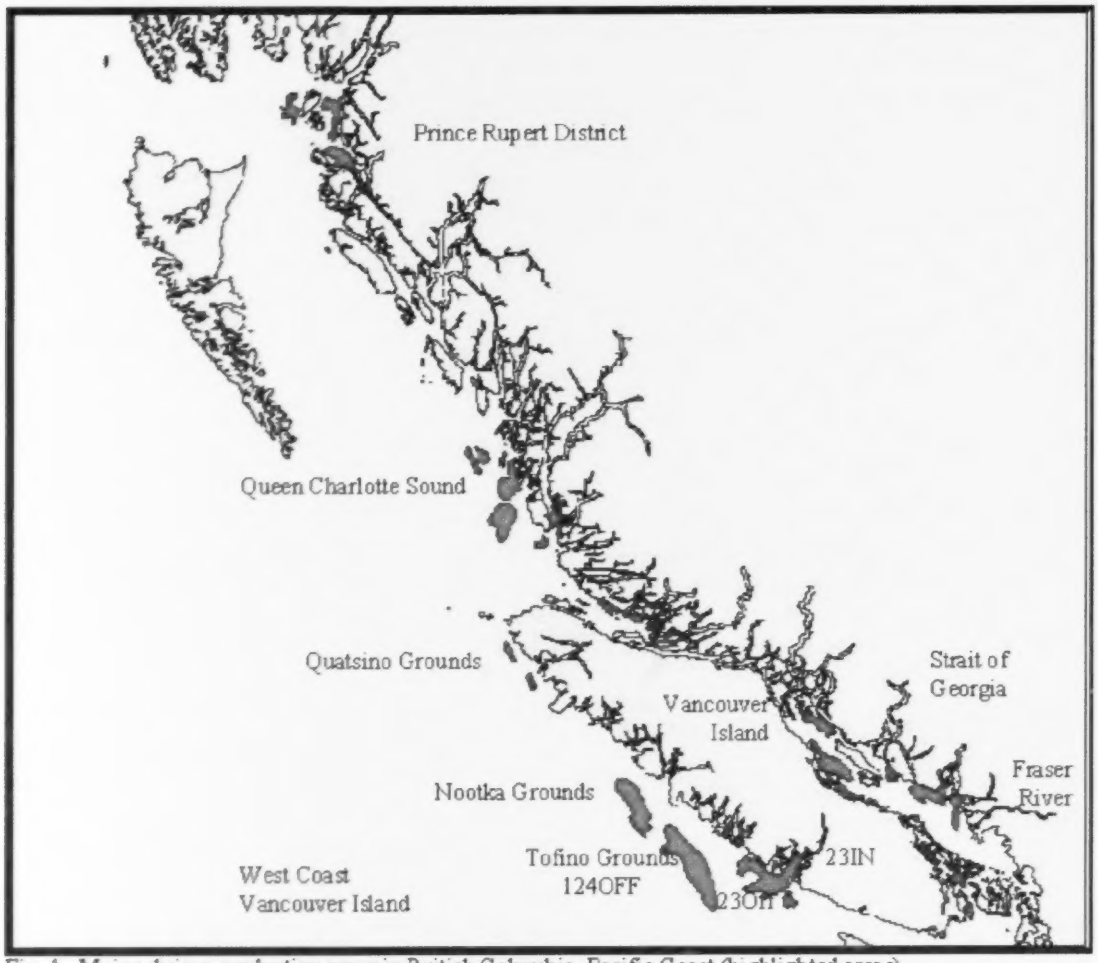

Fig. 1. Major shrimp production areas in British Columbia, Pacific Coast (highlighted areas).

Estimates of biomass are based on fishery independent surveys for pink shrimp, sidestripe shrimp and sometimes for coonstripe and humpback shrimp for a select number of SMAs. Area-swept trawl surveys are conducted on a fixed schedule basis to index shrimp biomass and to monitor trends in abundance over time. Survey results and abundance trends are reported in Shrimp Survey Bulletins in-season (available on request).

The most recent science advisory report on stock trends and stock status advice for inshore shrimp stocks (DFO 2012) can be found at Fisheries and Oceans Canada, Canadian Science Advisory Secretariat website: http://www.isdm-gdsi.gc.ca/csas-sccs/applications/Publications/index-eng.asp

Economic, Social, Cultural Importance

The majority of the British Columbia shrimp trawl fleet consists of small vessels that harvest modest volumes of shrimp during day trips. Large trawl vessels are generally not active in the B.C. shrimp fishery. This fleet structure contrasts to global competition, particularly from the east coast of Canada, and more recently Washington and Oregon, where large trawlers engage in an industrial scale fishery. The B.C. industry, with low volumes and high production costs, is less competitive than large-scale shrimp fisheries. Rising fuel prices have limited the economic viability of travelling to fish in areas that are far from home port. Shrimp Management Areas close to population centres have higher effort so annual catch ceilings are

often reached before the end of the fishing year. Overall, positive results for earnings after interest, taxes, depreciation and amortization are achieved by only the top one-third of the active shrimp fleet (Nelson, 2009). Only a small portion of the fleet is achieving economic viability. Two thirds of the vessels reporting in 2007 were not making sufficient income to cover their expenses and were relying on participation in gillnet salmon, troll salmon and tuna fisheries to cover fixed costs (Ibid.). Average landing per vessel in 2011 by the 50 vessels that reported landings of approximately 24,000 lb (10,900 kg) and average earnings were $37,000. Twenty five percent of the active fleet land 60% of the landings and had 60% of the earnings (11 vessels). Three vessels landed more than 70,000 lb (31,750 kg) for $100,000 or more in value. Licence values for the commercial shrimp trawl fishery are currently extremely low. Although the shrimp industry has explored means of reforming the fishery to improve viability, it has been unable to reach an agreeable alternative approach to restructure/reform itself to meet the current economic situation.

Shared Stewardship Arrangements

The Pacific Coast Shrimpers Cooperative Association (PCSCA) and Fisheries & Oceans Canada have defined the annual co-management programs in support of the commercial fishery.

Shrimp trawl harvesters are required by Conditions of Licence to make arrangements with a service provider for the delivery of in-season vessel fishing location and landing hail reports. A catch monitoring program, including at-sea bycatch and dockside sampling of shrimp are all requirements under the current fishery. The cost of this service to vessel owners is established by the PCSCA by negotiation with a service provider on behalf of shrimp trawl vessel owners. The industry service provider is Archipelago Marine Research Ltd. The costs of the program are covered by individual fees paid to the PCSCA.

Fisheries and Oceans Canada provides stock assessment, fishery management, enforcement, licensing and administration for the shrimp trawl fishery. Personnel are generally multi-tasked and, as a consequence, costs incurred by the Department to manage this fishery are difficult to assess. Contributions to the IFMP are provided by the Fisheries Management Directorate, the Science Branch, the Shellfish Data Unit, the Conservation and Protection Directorate, the Pacific Fisheries Licence Unit, the Treaty and Aboriginal Policy Directorate, the Recreational Fisheries Division, the Oceans Directorate and numerous administrative personnel.

Governace Process

The Minister of Fisheries and Oceans has ultimate and final responsibility for the management of fisheries in Canadian waters, and for the conduct of Canadian vessels operating in international waters. The shrimp by trawl fishery is governed by the *Fisheries Act* and regulations made thereunder and other applicable federal legislation.

The primary consultative body for the fishery is the Shrimp by Trawl Sectoral Committee. The committee includes members from the Department, First Nations, commercial industry, and other sectors. The Sectoral Committee meets annually in the fall to provide advice to the Department on the IFMP. The draft IFMP goes out for a 30-day public consultation and the final version of the IFMP goes for approval by the Regional Director General for the Pacific Region. The final IFMP is available by the beginning of March. The shrimp trawl fishery is a vessel based licensed fishery, with licence period beginning April 1 and ending March 31 annually. The fishery is open coastwide on June 1. Catch ceilings are determined from shrimp biomass forecasts for areas with annual surveys. Other areas have fixed species specific catch ceilings. Each shrimp management area may close if catch ceilings are reached.

Catch ceilings for areas with fishery independent swept area trawl surveys are adjusted in-season based on the shrimp biomass determined from the survey. Each vessel hails to fish and hails the estimated catch each week. The catch to date is monitored by fishery managers and when the species catch ceiling is reached, the area closes for the season.

A research subcommittee meeting is held as needed to plan research activities for the following year.

Access and Allocations

The Minister can, for reasons of conservation or for any other any other valid reasons, modify access, allocations and sharing arrangements outlined in this IFMP in accordance with the powers granted pursuant to the *Fisheries Act*.

The commercial fishery is managed through a Total Allowable Catch (TAC), limited entry licensing, area quotas and a precautionary harvest rate.

Trawl nets are not permitted as a gear type for recreational shrimp harvest and baited traps rarely retain pink and sidestripe shrimp, therefore these species are generally not harvested recreationally.

To date there have been no limits placed on First Nations' harvest for food, social and ceremonial purposes.

Management Issues, Objectives and Measures

#	Management Issue	Objectives	Management Measure
1	The number of shrimp species and stocks involved in the shrimp trawl fishery has resulted in complex management and assessment programs. Surveys of the major shrimp grounds are conducted by the Department's Science branch and the resulting shrimp biomass estimates are used to define catch ceilings. The commercial harvesters have an issue concerning fishing opportunities on some specific stocks, and fishing areas that are not addressed by the current program, such as localized coonstripe or humpback shrimp stocks.	Continue to conduct biomass surveys as resources allow.	The Department is unable to address specific fishing opportunities due to limited resources to survey and define shrimp biomass for many small localized species/stocks.
2	The incidental bycatch of an anadromous smelt, eulachon (*Thaleichthys pacificus*), is of concern since the returns of eulachon to many of the Central Coast rivers, and the Fraser River have declined.	Minimize eulachon bycatch to the extent possible.	The Department is working with the shrimp trawl industry to minimize eulachon bycatch. Area closures, seasonal closures, and an eulachon action level (see Appendix 1, section 3.1) with an at-sea observer program were implemented to monitor eulachon bycatch in West Coast Vancouver Island areas. Bycatch reduction devices (including rigid grates) are mandatory coastwide. The Department is in the process of consultation around the potential listing of eulachon under the *Species at Risk Act*.

3	Recreational fish harvesters have brought forward concerns about the bycatch of spot prawns (*Pandalus platyceros*) by the commercial shrimp trawl fishery.	Control prawn harvest in the fishery to the regulated limits.	When prawn spawner abundance is below the "spawner index" (minimum number of female spawners), areas will close for recreational prawn fishing in winter (see the IFMP for Prawn and Shrimp by Trap for more details). Retention of prawns is not permitted in the shrimp trawl fishery except where a small incidental bycatch of prawns is allowed during the commercial prawn by trap fishing season (May-June). When prawn bycatch is suspected to be high in specific areas, at-sea observers may be deployed on commercial fishing trips and a resource manager will make changes to the fishery if necessary.
4	The bycatch of non-target fish in the shrimp trawl fishery was defined by at-sea observations starting in 1997 and a bycatch monitoring program has been supported by industry contributions since 1999.	To implement measures aimed at reducing non-target catch in the fishery to the extent possible.	The Department collects estimates of bycatch by tow for trips that are observed, however, observer coverage is less than 2% of the fishing effort coastwide (50 days per year) which precludes the ability to estimate total annual bycatch by the fishery. The observer program is focused on eulachon bycatch in West Coast Vancouver Island areas to monitor eulachon to shrimp ratio and to document the use of bycatch reduction gear. The use of bycatch reduction devices (bycatch grates, large mesh panels, etc) significantly reduces the bycatch of non-target fish (Olsen et al. 1999). Bycatch reduction gear has been mandatory since 2000.
5	Shrimp trawl gear contacts the bottom The potential impacts of mobile bottom trawl gear on benthic habitat, populations and communities have been well documented (DFO 2006).	To assess the fishery impacts on sensitive benthic area against the Department's new policy for Managing the Impacts of Fishing on Sensitive Benthic Areas.	A Departmental policy for Managing the Impact of fishing on Sensitive Benthic Areas has been finalized. Four sponge reef areas off the coast of British Columbia in the eastern Queen Charlotte Sound and Hecate Strait have been identified as Sensitive Benthic Areas. These reefs were closed to groundfish and shrimp trawling starting in 2003. The Ecological Risk Assessment Framework drafted under the national Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas will be used to determine the level of risk in these fisheries and whether mitigation measures are required.

Compliance Plan

Conservation and Protection (C&P) staff will pursue opportunities to monitor and enforce this fishery, in conjunction with the monitoring and enforcement priorities directed by senior management in the Pacific Region.

Performance Review

Performance indicators are reported in a Post-Season Review that considers the objectives of Conservation and Sustainability, Social, Cultural and Economic objectives, Compliance and Ecosystem objectives of the shrimp trawl management plan.

Stock assessment and research activities are outlined. The post season review may include outcomes from meetings with First Nations and other sector regarding shrimp by trawl. The delivery of the commercial fishery will be assessed by performance measures such as the amount of shrimp landed and the value of the fishery. Input from members at the Shrimp by Trawl Sectoral Committee meetings will be included. The post season review will also include time spent attending to enforcement of the fishery.

Fisheries and Oceans Canada Contact

For additional information on this IFMP Summary or to request an electronic version of the full IFMP, please contact Dan Clark at 250-756-7327 or dan.clark@dfo-mpo.gc.ca